

REMARKS

Claims 1-15 are pending in the application. Claims 1-2, 4-7, and 9-15 stand rejected under 35 U.S.C. §102(e) as being anticipated by Dai (U.S. 6,528,020). With this response, claims 1, 6, and 13-15 are amended, and claims 16-18 are newly added. Support for the amendments to claims 1, 6, 13, and 14 and new claims 16-18 can be found at least in Figs. 1, 3, and 17, and support for the amendment to claim 15 can be found at least at col. 13, lines 16-23. No new matter is added by amendment. After entering the amendments identified herein, claims 1-18 will be pending in the application. Reconsideration of the claims, in light of the remarks that follow, is respectfully requested.

Applicants acknowledge with appreciation that claims 3 and 8 are allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Dai discloses carbon nanotube devices such as chemical and biological sensors (abstract). Dai discloses forming sensors by first forming catalyst islands, then growing carbon nanotubes so that they bridge adjacent islands, and then depositing metal electrodes onto the catalyst islands, as shown in Figs. 1C and 2. Dai also discloses forming sensors by first depositing catalyst on a substrate, then growing a “film of interconnected single-walled carbon nanotubes” from the catalyst, then depositing metal electrodes over the film using a shadow mask so as to leave a gap between the electrodes, as shown in Fig. 3B (col. 4, lines 41-57).

In contrast, claim 1 as amended recites a “trace having at least two sides that are substantially parallel to each other, wherein the trace includes a plurality of unaligned nanotubes for providing a plurality of conductive pathways along the trace.” Dai does not disclose or suggest a trace that includes a plurality of unaligned nanotubes and that has at least two sides that are substantially parallel to each other. Dai simply discloses, for example in Figs. 1C and 3B, arrangements of carbon nanotubes having no defined shape.

Claim 6 as amended recites a “trace having a length and a width, the length being substantially larger than the width, wherein the trace includes an electrical network of a plurality of nanotubes in contact with other nanotubes to provide a plurality of conductive pathways along the trace.” Dai does not disclose or suggest a trace that includes a plurality of nanotubes in

contact with other nanotubes and that is substantially longer than it is wide. Dai discloses arrangements of carbon nanotubes having no defined shape.

Claims 11 and 12 recite, among other things, “a conductive trace of predefined shape” that includes “a plurality of unaligned nanotubes.” Dai does not disclose or suggest a trace that includes a plurality of unaligned nanotubes and is of predefined shape. Dai discloses arrangements of carbon nanotubes having no defined shape.

Claim 13 as amended recites “[a] wafer substrate structure having a non-woven fabric of unaligned nanotubes substantially parallel to and covering a major surface of the wafer substrate, the major surface of the substrate comprising a plurality of patterned conductors, and wherein the nanotubes of the fabric are arranged in accordance with inherent self-assembly traits of the nanotubes.” Claim 14 as amended recites “[a] wafer substrate structure having a non-woven fabric of unaligned nanotubes covering a major surface of the wafer substrate, the major surface of the substrate comprising a plurality of patterned conductors, and wherein the fabric comprises substantially a monolayer of nanotubes.” Dai does not disclose or suggest a non-woven fabric of nanotubes covering a substrate surface that includes a plurality of patterned conductors. Dai discloses a film of nanotubes on a substrate that has no patterned features. Dai discloses depositing electrodes on top of the film of nanotubes.

Claim 15 as amended recites “[a] wafer substrate structure having a non-woven fabric of unaligned nanotubes substantially parallel to and covering a major surface of the wafer substrate and wherein the fabric comprises a multilayer fabric having a controlled density of nanotubes.” Dai discloses extremely sparse films of nanotubes, for example in Figs. 1C and 3B, and does not disclose or suggest multilayer nanotube fabrics having a controlled density of nanotubes.

Newly added claim 16 recites “[a] plurality of conductive traces on a substrate, each conductive trace extending substantially parallel to the substrate and comprising a non-woven fabric of carbon nanotubes, the plurality of conductive traces extending substantially parallel to each other and having a spaced relation between adjacent conductive traces.” Newly added claim 17, which depends from claim 16, further recites that “the substrate comprises a plurality of patterned conductors under the plurality of conductive traces.” Newly added claim 18, which depends from claim 17, further recites “a plurality of patterned conductors over the plurality of

conductive traces.” Dai does not disclose or suggest any of these features. Dai simply discloses growing a film of nanotubes on an unpatterned substrate and then depositing a pair of electrodes on top of the film.

For at least the reasons given above, Applicants submit that Dai does not anticipate independent claims 1, 6, and 11-16, nor claims dependent thereon.

In view of the above amendment, Applicants believe the pending application is in condition for allowance, and respectfully requests the Examiner to allow the claims to issue. A petition for a two-month extension of time accompanies this response, and the Commissioner is authorized to charge the fee required for this response to Deposit Account No. 08-0219. No other fees are believed to be due at this time. However, please charge any fees, or credit any overpayments, to Deposit Account No. 08-0219.

Respectfully submitted,

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